

U.S. Pat. Application No.: 10/077,548
Attorney Docket No. 005127.00138

REMARKS

Applicant respectfully asks for reconsideration of both this application and the final Office Action dated June 2, 2004.

This Amendment revises the Abstract to address minor informalities noted by the Examiner. Accordingly, Applicant courteously submits that this Amendment does not raise new issues requiring further consideration, and does not present amendments to the specification that were not already anticipated by the Examiner. Applicant therefore asks for entry and consideration of this Amendment in accordance with 37 C.F.R. §1.116.

In the Office Action of June 2, 2004, the Examiner first objected to the Abstract (1) for using the phrase "are disclosed" and (2) for reciting purported merits of the invention. Applicant respectfully traverses this objection, and courteously asks for its reconsideration. Applicant has amended the Abstract herein to omit the phrase "are disclosed." With regard to the recitation of the purported merits of the invention, Applicant submits that the Abstract does not describe any merits of the invention, purported or otherwise. Instead, the Abstract discusses one possible use of fibers with circuit components deposited thereon (i.e., to form an accelerometer in an article of clothing) according to various embodiments of this invention. Applicant points out that this subject matter is not a prohibited speculative use of the invention, but rather is expressly disclosed in the application. (See, e.g., the "Summary Of The Invention" portion of the application.) In order to emphasize this point, Applicant also has amended the Abstract to omit two uses of the phrase "for example." It is therefore requested that the objection to the Abstract be withdrawn.

Next, claims 1, 3-22, 24 and 25 were again rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,210,711 to Post et al. Applicant respectfully traverses this rejection, and asks for its reconsideration.

Claims 1 and 3-11 recite a method of forming an article of wear that includes forming at least one electronic component on a fiber. Claims 12-22, 24 and 25 then recite an article of wear including at least one electrical component formed over a surface of a piece of clothing material. Applicant respectfully submits that these recited features of the invention are not taught or suggested by the Post et al. patent.

In making this rejection, the Examiner states that:

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Post discloses the fabrication of electronic devices and circuits, and in particular to the integration of such devices and circuit into textiles (fabrics, clothing material). (See Office Action, page 2, lines 15-16.)

Applicant does not dispute this assertion. Applicant points out, however, that the Post et al. patent still does not teach or suggest the features of the invention recited in claims 1, 3-22, 24 and 25.

The Post et al. patent describes two techniques for creating electrical circuits using fibers. In the first technique,

the [Post et al.] invention achieves selective, anisotropic electrical conductivity by utilizing conductive fibers running along one weave direction and non-conductive fibers running along the opposite direction. The conductive fibers serve as electrical conduits capable of carrying data signals and/or power, and may be connected, e.g., to electrical components soldered directly onto the fabric. (See Post et al. at column 2, lines 12-20.)

With the second technique,

the [Post et al.] invention comprises fabrication of circuit traces and passive electrical components into textiles using threads having selected electrical properties...For example, capacitors can be formed using extended parallel lanes of conductive material separated by non-conductive fabric that serves as a dielectric, or by spaced-apart patches of conductive material. Inductors and transformers can be formed from one or more spiral lengths of conductive material; in the case of a transformer, for example, the spirals may be concentrically disposed and magnetically coupled. (*Id.*, column 3 lines 9-23.)

Thus, the Post et al. discloses four structures that might be interpreted as electronic (or electrical) components: the fibers themselves, electrical components formed by the fibers, the separate electrical components used with the fibers, or the circuit formed by the combination of the fibers and the separate electrical components.

If the Examiner interprets a conductive fiber of the Post et al. patent to itself be an electronic component, then this fiber cannot be considered an electronic component formed on a fiber as recited in claims 1 and 3-11. (That is, an object cannot be formed on itself.) Similarly, an electronic component formed by multiple fibers (e.g., a capacitor or conductor) cannot be considered an electronic component formed on a fiber. Instead, it can at most be characterized as a single electronic component incorporating a fiber or a group of electronic components positioned adjacent to each other. As for the separate electrical components disclosed by Post et

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al., the Post et al. patent does not teach or suggest forming any of these separate components on a fiber. Instead, the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber. With regard to the circuit created by attaching a separate electrical component to a fiber taught by the Post et al. patent, Applicant likewise submits that this combination cannot be considered an electronic component formed on a fiber. At best, it can only be considered an electronic component that incorporates a fiber. Applicant respectfully points out that the separate circuit component can be characterized as a separately formed electronic component placed on a fiber, or as a part forming a larger circuit together with the fiber on which it is placed, but not as both simultaneously.

Similarly, Applicant respectfully submits that the Post et al. patent does not teach or suggest at least one electrical component formed over a surface of clothing material. Again, if the Examiner interprets a conductive fiber of the Post et al. patent to itself be an electrical component, then this fiber cannot be considered an electrical component formed over a surface of clothing material as recited in claim 1. Rather, the fiber is at best an electrical component that forms a part of a clothing material. Similarly, an electrical component formed by multiple fibers cannot be considered an electrical component formed over a surface of clothing material, but can only be considered an electrical component that forms a part of a clothing material. With regard to the separate electrical components disclosed by Post et al., the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber, as previously noted. Thus, these separate components are not formed over a surface of clothing material as recited in claims 12-22, 24, and 25. Applicant likewise submits that the combination of a separate electrical component attached to a fiber taught by Post et al. cannot be considered an electrical component formed over a surface of clothing material. Again, Applicant respectfully submits that the separate circuit component can be characterized as an electronic component attached to a clothing surface, or as a part forming a larger circuit in conjunction with the clothing surface, but not as both simultaneously.

With particular regard to claims 3, 4, 13 and 14, the Examiner rejected both of these claims based upon the disclosure in the Post et al. patent that

To prevent fibers 110 from making unwanted contact as a result of folding, the fabric 100 may be provided with a non-conductive...coating (e.g., a transparent acrylic coating that may be sprayed on) *following affixation of the electronic*

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components. (See Office Action, page 3, lines 1-4 citing Post et al., column 4, lines 58-62, emphasis added.)

Claims 3 and 13, however, recite the formation a substrate over a surface of the fiber, and then the formation of the electronic component over the substrate (i.e., the substrate is under the electronic component.) It therefore is unclear how the coating disclosed in the Post et al. patent, applied after the affixation of the electronic components, can arguably anticipate the invention recited in claims 3 and 13. In any case, claim 4 then recites forming a protective layer over the at least one electronic component. Claim 14 similarly recites a protective layer formed over the at least one electronic component. Applicant respectfully points out that the single coating taught by the Post et al. patent thus cannot be both under the electronic component, as recited in claims 3 and 13, and over the electronic component as recited in claims 4 and 14.

Regarding claims 6, 8, 16 and 18, each of these claims recites a shield layer. The Examiner has rejected these claims based upon the non-conductive coating disclosed in the Post et al. patent. Applicant respectfully points out, however, that electronic shielding typically is formed of conductive material.

Accordingly, Applicant respectfully submits that the Post et al. patent does not teach or suggest the features of the invention recited in claims 1, 3-22, 24 and 25. Applicant therefore asks that the rejection of these claims be withdrawn.

Next, claim 2 was rejected under 35 U.S.C. §103 over the Post et al. patent in view of U.S. Patent No. 6,472,029 to Skszek. Applicant respectfully traverses this rejection, and courteously asks for its reconsideration as well.

Applicant respectfully submits that one of ordinary skill in the art would not have been led to combine the teachings of the Post et al. and Skszek patents in the manner suggested by the Examiner. Nothing in the Post et al. patent teaches or suggests forming an electrical component by spraying materials at a fiber through a laser. The Skszek patent, on the other hand, does not mention the formation of any type of electronic component. Instead, the Skszek patent suggests that its disclosed fabrication techniques could be used to create strong, abrasion resistant thermally conductive materials for injection molding. (See, e.g., column 1, line 64 to column 2, line 30.) There is simply nothing in either patent to suggest the use of the Skszek techniques to form circuit components, much less on fibers as asserted by the Examiner. Applicant therefore

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respectfully submits that the combination of the Post et al. and Skszek patents is improper, and asks that the rejection of claim 2 be withdrawn.

Lastly, the Examiner rejected claim 23 under 35 U.S.C. §103 over the Post et al. patent in view of U.S. Patent No. 5,555,490 to Carroll. Applicant respectfully traverses this rejection, and asks for its reconsideration. Applicant again submits that the Post et al. patent does not teach or suggest the features of the invention recited in this claims, and the Carroll patent does not remedy the omission of the Post et al. patent. Moreover, in making this rejection, the Examiner has combined the disclosure of leather materials in the Carroll patent with the use of the electrical fibers taught by the Post et al. patent. As leather does not employ fibers, however, Applicant respectfully submits that one of ordinary skill in the art would not know how these teachings of the Carroll patent and the Post et al. patent could even be combined. Applicant therefore asks that the rejection of claim 23 be withdrawn as well.

It is believed that no fees are required for the consideration and entry of this Amendment. If, however, the Commissioner deems that any fees are required to maintain the pendency of this application, including any fees under 37 C.F.R. §1.16 and 1§.17, the Commissioner is authorized to charge such fees to Deposit Account No. 19-0733.

In view of the above amendments and remarks, Applicant respectfully submits that all of the claims are allowable, and that this application is therefore in condition for allowance. Favorable action in this regard is courteously requested at the Examiner's earliest convenience.

Respectfully submitted,

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